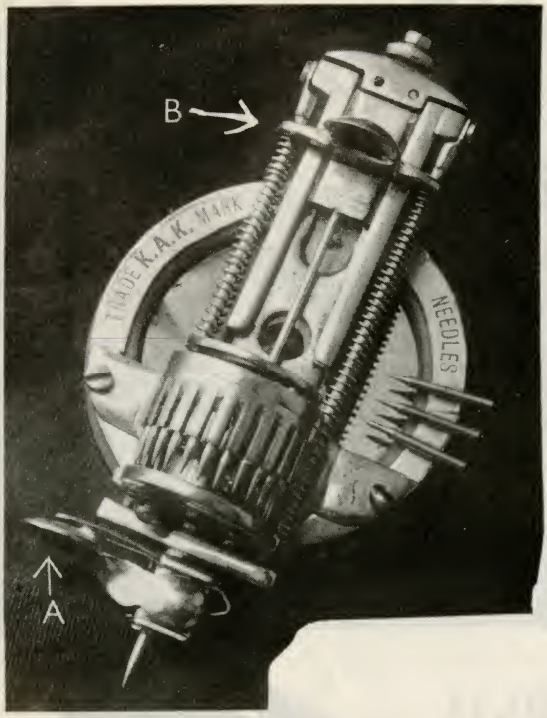
THE KILLAMDALE NEWS

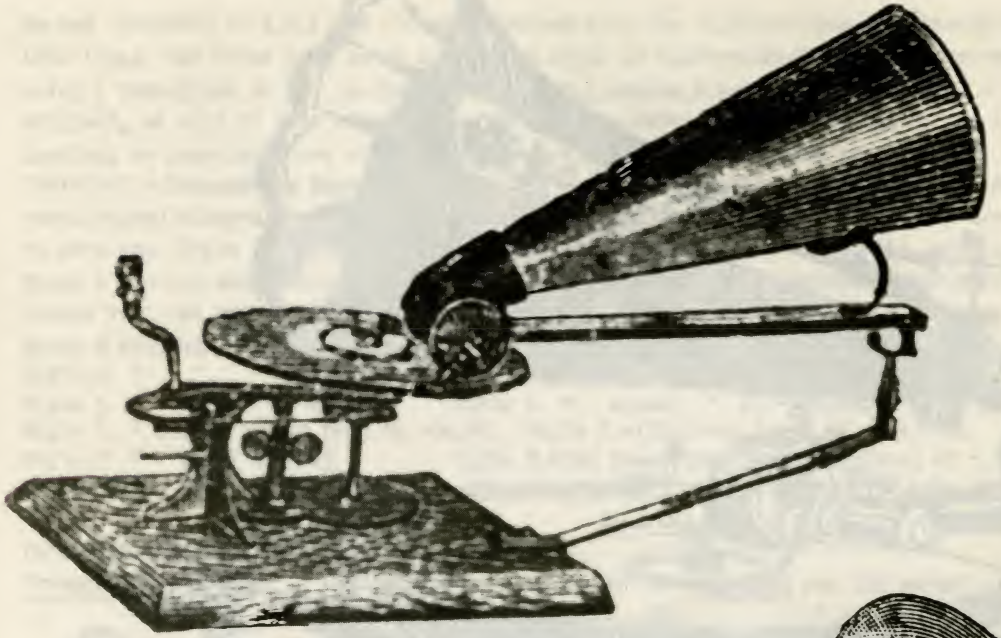
THE CITY OF LONDON PHONOGRAPH & GRAMOPHONE SOCIETY

NO.43 June 1968



GERRY ANNAND

FRED VAN EPPS



Style No. 2

Style No. 3

KNOW YOUR PHONOGRAPHS!

Have the phonographs in your collection taken on a Rube Goldberg appearance? A 'Portfolio of Early Phonographs' shows 50 of the most common outside horn phonographs with enlarged detail of important features such as reproducers, labels and accessories. Each machine is pictured separately on heavy 8X10 glossy stock and spiral bound to lie flat for easy viewing. This Portfolio will be sent to you Post Paid for just $5.50, so ACT NOW, and be the first collector in your block to own one!

write : Lawrence A. Schlick [redacted] *Worthington, Minnesota U.S.A 56187*

OUR ILLUSTRATIONS

We are grateful to E.M.I.Ltd for co-operation with the illustrations of Gramophones in this issue. The front page is of the second style of hand-cranked 'Berliner' Gramophone, being a photograph of the machine' in the E.M.I.museum. However, the soundbox is not the original, as will be seen on reference to the line drawing on page 3. All of the line drawings we reproduce are enlargements from a single sheet of pink paper titled - "Private" - Gramophones Export List 1901. It measures 10 inches x 8 inches. Your Editor photographed close-up each tiny illustration and had them enlarged. We haven't space here to show you 'Style 11' but may be able to do so in the future. Style 8 was coin-in-slot. Style 1 was not shown. We assume that was the more familiar 'hand-cranked' Berliner. We assume that the prices were wholesale dealer prices, but give them below for interest:-

Style 2 with black horn £1 - 8s. Style 3 with black horn £2 - 2s.
Style 4 " " " £2 -16s. Style 5 " " " £3 - 3s.
Style 5 " brass " £3 -12s. Style 5 " nickel " £3 -14s.6d.
Style 5 " silver plated horn £4 -0s.6d. Style 6 with brass horn £4 - 6s. 8d.
Style 7 " brass horn £5 Style 8 with brass horn (Penny-in-Slot) £5 - 10s.
Style 10 " " " (De Luxe) £6 - 13s. 4d. Style 11 with brass horn (to take 10-inch Records) £7

Other interesting prices shown were:-

Gramophone Records. . . Ordinary (7") per dozen £1 Needles per 200 packet 1s.
10 inch " " £2 " 1000 " 4s.
" 5000 " 19s.

Horns Black No.2. 3s.6d.
Black ordinary 3s.6d. Nickel plated ordinary 15s.
Brass " 12s.6d. " " 28 inch £1 - 8s.
Brass 28 inch £1. Silver plated ordinary £1 - 1s.
" " 28 inch £1 -12s.
Large brass horns (48 inch) complete with tripod stand £2 - 10s.
" " " " with Bell mouth, complete with tripod stand £3 - 10s.
(A specially-adapted sounbox for this outfit 13s.4d.)

Separate Machine Parts

Brake Bolt	2s.6d.	Leather Elbow for Horn	1s.0d.	Extension Arm for No.5.	2s.6d.
Diaphragm	1s. d	Governor springs (3)	9d.	" " " No.6.	5s.0d.
Clamp Screw	1s.9d.	Main spring	2s.6d.	" " No.7&10.	10s.0d.
Stylus bar	1s.9d.	Sound box case (card)	3d.	Travelling Arm No.5.	2s.6d.
Sound box	13s.4d.	" " " (leather)	1s.8d.	" " No.6.	5s.0d.
Sound box clip	9d.	Winding key	2s.0d.	" " No.7 &10.	10s.0d.

NOTE The above prices are subject to a discount, for cash only, of 10 %

THE GRAMOPHONE & TYPEWRITER COMPANY LTD. 31.MAIDEN LANE. LONDON

The list was torn in places and repaired with mending tape as you will note in our illustrations. Record cases and 'receptacles' were also listed, but mended so that some prices were obscured.

To the other pictures . . . By the courtesy of Robin Hayden we show a recent photograph of our President, Gerry Annand, taken at a Society meeting at 'The Horse and Groom' in London. The photographs of Fred van Epps were loaned by Mr.Tom Edwards and were taken during Mr.Epps last visit to London. Mr.Edwards' talk to our Society is

reported in this issue by Gerry Annand. The reproducer of original design was produced by William Keast, H.A.Austin and A.Kimpton and we are grateful to Mr.Sydney Keast(our member) who has again dug among his 'treasures' to find the original photograph. (He has also loaned us some original Edison leaflets for our use later). The magazine of this soundbox invented by William Keast and his friends had a revolving magazine which one filled with needles. After playing a record, the used needle was ejected by squeezing towards each other the little levers indicated by A & B.

The back page shows Dr.Hopkinson's Edison disc phonograph which he describes on P.18.

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TWO RECITALS reported by Gerry Annand

Thanks to the good offices of Messrs Douglas Moncrieff and John Field, we were able to enjoy one of our more unusual recitals at Curtain Road on 9th.April, 1968. This was the occasion of a visit by Mr.Tom Edwards, the celebrated banjo player, himself a close friend of the late Fred van Eps.

The agenda took the form of a very interesting lecture on banjo travels, many live banjo performances, in which George Crump acted as an excellent accompanist on a guitar, and "canned" banjo music provided by the indefatigable Len Watts to give the soloists a breather.

The banjo used was a five-stringed long handle model which Mr.Edwards tols us had been given to him by Fred van Eps.

Several of the ytunes familiar to all of us who possess early banjo recordings came one after the other, but as so often happens, the hit of the evening was a composition by the artist himself.

I think it left us all a little breathless.

* * * * * * * * * *

On 14th.May, a Blue Amberol recital was in the safe hands of Roy Smith, who chose for his subject "Marching and Waltzing".

That, in itself is a narrow band in the vast vista of music, but Roy knows how to turn two narrow lanes into a broad highway. We marched with the U.S.Marine Band and we waltzed with the New York Military Band. Thus it was possible to compare the phlegmatic Charles Rissaro conducting the New Yorkers, and the electric Santelman with the U.S.Marine playing the White House theme song, Sousa's 'Semper Fidelis'. Then the quiet artistry of Walter van Brunt, a bubbling Ada Jones and a young vibrant Peter Dawson. Still we marched and waltzed, and even Jack Stillman was brought in to justify the programme. It was soon interrupted. . . . This time 4444 "Ain't Gonna be Nobody's Fool" sung by Isabella Patricola. That might have been included for my benefit, but this was the general tenor of an absorbing evening, which kept everybody quiet . . A sure sign. Thank you Roy.

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An Edison Memorabilia on two L.P.records.

These two excellenty-produced important re-issue records from all types of Edison cylinders and discs will be reviewed by Ernie Bayly in the next issue. They are priced $ 5 each and available from the Edison Foundation in Detroit. You will WANT these, so begin cutting out a few luxuries right now.

WOULD YOU LIKE TO OWN OVER 50 PHONOGRAPHS AND HORN-GRAMOPHONES?

I am willing to swop my entire collection for the 20th Century Fox film

"SONG O' MY HEART"

featuring John Mc.Cormack.

I will also do a deal for the 10-minute sequence from

"WINGS OF THE MORNING" (M.G.M.)

also featuring John Mc.Cormack.

BRIAN AHEARNE, [redacted]
MANSELTEN, SWANSEA, GLAMORGAN.

Thumb Nail Sketches, No.35 by Tyn Phoil

Ave Maria (Gounod)

Edison Blue Amberol 28106

Sung by Marie Rappold (in Latin) violin obligato by Albert Spalding.

This sacred song has always been considered a great musical masterpiece. It consists of an air found in Bach's first prelude, adapted as a setting for an anthem by Charles Gounod. The piece is here arranged first as a violin solo, and then soprano solo with violin obligato.

Marie Rappold was one of the principal sopranos with the Metropolitan Opera House for many years, and did much concert work with the Boston Symphony Orchestra.

Spalding commenced violin lessons when he was seven and made his first public appearance when he was ten. His book, "Rise to Follow" tells a fascinating story of his European concerts in the ever grateful presence of André Benoist.

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An Evening with The Royal Ballet part 6

by Gerry Annand

THE ARTISTES. (conclusion)

BRIAN SHAW was born in Yorkshire in 1928. He joined the Royal Ballet in 1944. One of the Ballet's principal male dancers who has danced many leading roles, including The Boy Blue in "Les Patineurs", Franz in "Coppelia", the Barber in "Mam'zelle Angot" and Petrushka. He created a role in "Symphonic Variations"

ANTOINETTE SIBLEY was born in Kent in 1939. She joined the Royal Ballet in 1956 where her line of attack and rapturous approach made her popular in such ballets as "The Sleeping Beauty", "The Two Pigeons", "Swan Lake" and "The Good Humoured Ladies". She created the role of the wife in "Jabez and the Devil".

MERLE PARK, has a gay and effervescent personality which she has shown to advantage as one of the Ballet's strongest and most versatile soloists. Among her many successes are included "Napoli", "La Fille Mal Gardée", Aurora in the "Sleeping Beauty" and "Birthday Offering" in which she danced the role created for Margot Fonteyn.

GRAHAM USHER trained at the Royal Ballet School from 1945 to 1955. He was born in Yorkshire in 1938, starting ballet life very young. He quickly established himself as a dancer of exceptional technical brilliance in such roles as the Devil in "Petrushka" and the Blue Bird in the "Sleeping Beauty". He danced the second principal male role in Kenneth MacMillan's "Diversions".

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Clarion Footnote by Gerry Annand

The Clarion Company continued manufacturing cylinders longer than our Editor mentioned in the article in April 'HILLANDALE NEWS'. In the 'Soundwave' for November 1921, Clarion, advertising from The Point, Wandsworth, list cylinders 1099 to 1125 @ 1s.9d. each. They are reviewed in the text.

The Albany Indestructible Company continued until 1922.

Both companies employed direct recording to the end.

(Thank you, Gerry, for the additional information. - Editor)

Home Cylinder Making Part 2.

by Peter Curry

FURTHER NOTES ON THE SHAVING DEVICE.

The shaving device as described in part 1 would be greatly improved if one of the bearing blocks were easily removable, thereby making it possible to change the cylinders without upsetting the bearing adjustments. The bearing-vee-forming brass strips would be better set at 60°, and not at "90° or less" as suggested, especially for those running on the front guide bar. As the feed-screw must be close to the front guide bar for positive tracking: when the tool-holder is cast in cement, crumbling of the ridge between the feed-screw groove and the front sliding vee may occur. Fig. 17 shows a remedy using wide brass strips taken right up into grooves in the cement vee.

Iron bolts, etc., to be set in cement are best coated with anti-corrosion paint; otherwise they may turn out loose as a result of bubbles forming round them during the setting of the cement. I have been told that the best way to obtain a fine finish on cement is to apply several coats of emulsion paint (after making good with plaster rubbing down frequently, finishing with a 'hard gloss' coat of paint. Painting the cement parts all over will reduce the risk of picking up cement dust when recovering wax shavings for re-melting.

MELTING AND CASTING WAX.

Broken wax cylinders can nearly always be made into blanks, but as wax compositions vary, some are too hard, or too 'rough cutting' to be used without additives. The soft brown waxes used for, say, commercial blanks, are ideal: but as these sometimes contain lead, it is unwise to inhale the vapour when melting them! They may poison the air if they catch fire. The addition of a little high melting point (h.m.p.) paraffin wax and beeswax - about one part in sixteen of each - may improve hard brown wax and 2-minute black wax. Some waxes, notably 4-minute wax, are very hard and 'rough cutting', and will spoil softer waxes if mixed with them. Ways of using these are to be described in part III of this series. A good test for the "cuttability" of a wax is to scrape it with the sharp edge of a broken piece of glass. It should scrape bright, or slightly dull and readily burnishable. The hardness of waxes may be estimated, after some experience, by digging with the finger nail.

Wax-melting is not the safest occupation, especially in view of the fact that cylinder making phonograph enthusiasts (judging by myself, anyway!) tend to be absent minded. Attention to the following points should ensure that any "off" moments you may have will not result in serious disaster:- a) Always have handy a fire extinguisher (oil fire type) and/or a bucket of sand within easy reach, especially if the use of a paraffin or spirit heater cannot be avoided. b) Be sure to have enough room to move in an emergency without knocking things over, and choose a place reasonably free from such things as piles of old newspapers, dried-up plant boxes, straw, cans of petrol, etc... c) Make a resolution never to leave melting wax for any reason without first turning off the heat. d) KEEP THAT RESOLUTION ! e) Be sure that your melting pot is large enough to allow for frothing, and do not try to melt too much wax at a time. f) Have a "smothering iron", i.e. a lid or plate of metal to cover the top of the melting pot, always handy. g) Avoid premature spilling of molten wax,

especially over yourself! Be warned that solder joints are very weak at the temperature of molten wax. H)Points on ventilation:- accumulations of wax vapour, with the risk of explosion and asphyxiation(not to mention lead poisoning) are possible with too little ventilation, whereas a draught will make it hard to produce good castings, and will ensure that if you do have a fire, it will be a good one!

When hot, the stearic acid in some wax compositions can attack zinc, tin, and iron and steel, thereby making it impossible to obtain bubble-free castings. The melting pot should be of aluminium or stainless steel. Suitable utensils may be purchased cheaply in junkshops. When wax is melted for the first time for about fifty years, it registers protest by frothing when the temperature has passed 212°F. This will stop when all entrapped moisture has been driven out, but it can be very troublesome, especially with heavily mildewed wax. Some wax may spill over and catch fire, so keep your "smothering iron" handy, though the fire risk is not very great at this temperature. Unless the wax may contain lead(as far as I know, the harder waxes never do)it would be better to let any spilled wax burn away rather than risk knocking the melting pot over in a frantic effort to put out the flames. When excessive frothing threatens, turn off the heat and stir until it subsides; and heat up again. Repeat if necessary. In bad cases it may be better to let the wax cool, scrunch up any solidified foam, and start again.

After the fire has been driven out, the wax may pass through a glutinous, unmanageable phase. Phonograph masses, to give them their correct name, are mixtures of waxes and soaps. The latter tend to separate out, forming a kind of jelly floating on top. They are largely re-dissolved with sufficientheating and stirring. The addition of beeswax and h.m.p. paraffin wax helps to dissolve separated soap. If, after about five minutes of cooking, some free soap still remain, more "tempering" may be added; but be sure that it is free soap, and not something, such as cooked fungus roots, and should be skimmed off.

Molten wax may be heated until it just begins to appear to smoke. Further heating is inadvisable, as frothing would again occur this time caused by the boiling of one of the actual mass ingredients. Wax in this state is about as safe as boiling paraffin!! A fire yielding to nothing less than heaps of sand, may suddenly start.

Before the wax can be used for blank making, a "gravity refining" process is advisable, as it may contain dust, grit and other rubbish likely to cause surface noise and damage styli. Transfer the hot wax to a deepish pre-heated tin surrounded by lagging as in Fig.18. Glass fibre heat insulation(now available in semi-rigid sheets and tubes), is best, but take care that no fibres get into the wax. Polystyrene heat insulation unfortunately will not stand the heat. The tin should have a cover, (not a close fitting lid), easy to remove when hot. The wax should still be liquid after about half an hour or more, during which time any rubbish likely to cause serious trouble will have sunk to the bottom, some sticking to the sides. Cool the tin with water and dry it with a rag or blotting paper, taking care not to spill the wax over the hands. The rubbish free wax may be decanted into another vessel, and the wax left in the tin kept for further refining. As long as the molten wax is hotter at the bottom than the top, convection currents will prevent the settling out of the rubbish. Decanting straight from the melting pot, however long it may have been kept warm by heating, is not an effective way of "refining" wax.

Fig.19 shows a type of mould that is easy to make and use at home. When making moulds,

allowance for wax shrinkage, and subsequent correcting and trimming of the casting must be made. The measurements to be given apply to moulds for making standard cylinders by the "static" method of casting, and Sterling sized (". . half an inch longer") cylinders by the "dynamic" method. In the "static" method the mould is filled with molten wax and left to cool until it can be handled with the bare hands. The wax in the middle, being still very soft, may then be easily removed with the special borer of Fig.25. In the "dynamic" method, to be described in more detail in part III, the mould is spun to make a centrifugal casting. There are many ways of casting hollow wax cylinders, but these two should appeal to home operators because they avoid the difficult and heartbreaking operations of making of making and using cores. In both of these methods, special scrapers are used to prepare the bores for reaming while the wax is still warm.

The long axial rod of the mould may be of ½-inch bright (⅜-inch would do) steel rod, but the mould tube and end-discs must be of aluminium, copper, or something proof against attack by stearic acid. Steel may be rendered more-or-less usable by blueing, copper plating or coating with high temperature epoxy resin. Heavy guage 2½-inch O.D. aluminium tubing (about $2\frac{5}{16}$-inch I.D.) would be ideal for making the mould, but may be hard to obtain. 18 or 20 guage aluminium sheeting may be used to make a mould with a screwed seam as in Fig.19. The widths of the seam laps depend on the screws to be used, say ¼-inch for ⅛-inch Whitworth. Note that the screws are so spaced that the first two at each end are within the first 2-inches of the seam. When setting out, not less than 7½ inches should be allowed for the circumference of the tubular part, otherwise the finished mould may be too narrow. The metal may be bent in a vice with the help of extension bars and a stout piece of tubing, about 1½-inch O.D. Having bent the seam laps (which may be drilled first), it is best to start bending the cylindrical part at the ends, as in Fig.22, finishing the middle part last with the bare hands. The more accurately this can be done, the better. The use of a straight edge and specially made circular guage is advisable. One should not have to rely too much on the end-discs to hold the mould true. The metal may be massaged into shape or a mallet, with scraps of wood to spread the effect of the blows (dents are no help!) may be used. With an accuracy of within 1/32-inch, it should be possible to withdraw finished castings from the mould without having to disturb the seam screws. A mould intended for fast spinning should be made in two halves with a seam each side, as a single seam would put it out of balance. By the way, when spinning a mould containing hot wax, IT IS IMPORTANT TO HAVE AN AMPLE GUARD ROUND THE LID END, as owing to pressures built up inside, wax leakage is likely. When flung all over the place, molten wax may not be quite so bad as molten lead, BUT . . . . ! The lid, of course, should be held on securely.

Screw up the seam, when the mould tube is as true as you can get it, and find the internal diameter at both ends, taking the average of measurements in several directions, as in Fig.23. If one should be wider than the other - actually an advantage - make the wider end the lid end (mouth) of the mould.

Two metal discs, with large central holes to fit the mould spindle and three small holes for screws, as in Fig.24, should be prepared. One is to be an accurate fit in the mouth of the mould, the other to be a tight fit at a position 2 inches from the other end (Fig.20). The lid disc is to fit about ⅛-inch inside the mouth of the mould, being screwed via a ⅛-inch spacer disc to a wooden handle of larger diameter (it does not have to be round) than the mould to form the lid shown in Figs. 19, 20, 21 and 26. The other disc is to be the bottom of the mould interior, and is to carry screws and nuts (Fig.20) to give the cement, which is to be put in the hollow bottom, something to grip. When the mould is made with a proper piece of tubing, the bottom disc must be drilled as shown in Fig.24B, with one screw (cheese head for preference) near the edge, so that it is left imbedded in the edge of the casting after the core has been bored out. The casting is likely to become

slightly loose in the mould towards the end of the scraping operation.This would not matter with a mould made of sheet metal,as the seam would prevent slipping;but in the absence of a seam,failure of the casting to rotate when the mould is turned would cause complications. The screw head,arranged as indicated,acts as a dog. The end of the resulting casting,with its screw head impression,may be trimmed off at the shaving stage.

The almost finished mould is now assembled and supported upside down as in Fig.26. Note the pin through the steel rod in the bottom 2 inches where the cement is to go.The bottom disc may be poked into position with a stick.Slacken off the seam screws,and when the disc position is right by a ruler or depth guage,tightn them up again.Whatever cement be used immediately under the bottom disc must be non-porous; otherwise,when hot wax is poured in,air forced out of the pores by expansion would be bubbled through the casting.Artificial marble(advertised in hobbies and handicrafts magazines)or Sorel's cement(magnesium oxide made into a paste with a 60% solution of magnesium chloride)may be used,but the metal must first be given a coat of anti-corosion paint to prevent unwanted chemical reactions.Not more than half an inch depth of the expensive Sorel's cement need be used.When it has set(not before !!) the rest of the space may be filled with ordinary cement.Molten lead may be used in a similar way.

The wax must be really hot before pouring,and any scum should be skimmed away from the spout of the melting pot and removed.Scun in the mould causes faults in the castirgs.As a further precaution against it,a strip of metal may be held across the spout while pouring.The mould,which should be pre-heated,is tilted from the vertical while the molten wax is poured smoothly down the side,and brought to an upright position as filling proceeds.Splashing of wax,which causes bubbles,must be avoided.

In the 'static' method of casting the mould,after filling with hot wax,is left to cool with the lid on. After 15 - 20 minutes the top three inches of the mould must be lagged (2 mm. polystyrene wall insulation is ideal),and the lagging kept on,say,by rubber bands,until the scraping is finished. (See Figs.27,29.) This is to forestall trouble caused by the wax in the open end of the mould cooling too quickly during the scraping operation. In about half an hour the wax should be ready for boring,the time varying,of course,with different moulds and working temperatures..

During the scraping operation the mould is fitted with a handle like that for the shaving device (Part I, Fig, 11), and is supported horizontally with the long spindle in bearings about 14 inches apart as in Fig.27. Slots cut in the ends of heavy steel strips(Fig.28) will do for the bearings. Provision was made for bolting these strips on to the shaving device. They may also,if desired,be screwed to firmly anchored blocks. The strips must be long enough to hold the mould and handle when being turned clear of the blocks,etc.

Boring and scraping tools for warm wax may be made of mild steel (I use galvanised iron) and sharpened with a file. The borer of Fig.25 is made to slide on the mould spindle as in Fig.29. A drilled metal disc is slit radially to the centre hole,and bent to form a turn of spiral with a cutting edge,Fig.25. This is to be screwed to the end of a semi-cylinder(better slightly conical),made by suitably bending the piece of metal of Fig.25B, the other end being screwed to a wooden handle like that of the mould lid. The borer must not have too much of an inward scooping action,as it can then cause caving in of the sides of the casting.

The borer is pushed into the warm wax (Fig.29) at the same time applying downward pressure to keep the spindle in the bearings,while the mould is turned by the handle. The coating of the wax left on the spindle after the boring operation may be removed with a V-shaped scraper as in Fig.30 (the handle of the recess cutter may be made this shape) to reduce the danger of the "scraping iron",to be used in the next satge , becoming jammed.

Fig. 17 TOOL HOLDER.

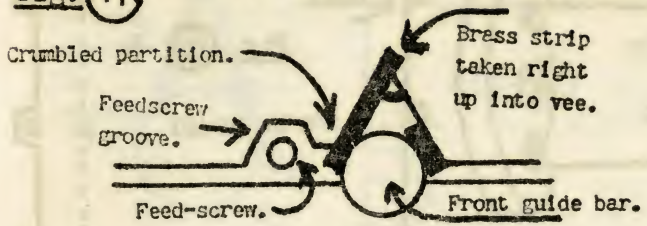


Fig. 18

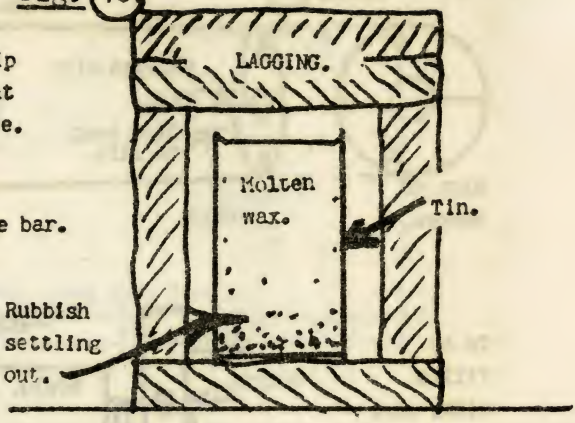


Fig. 19

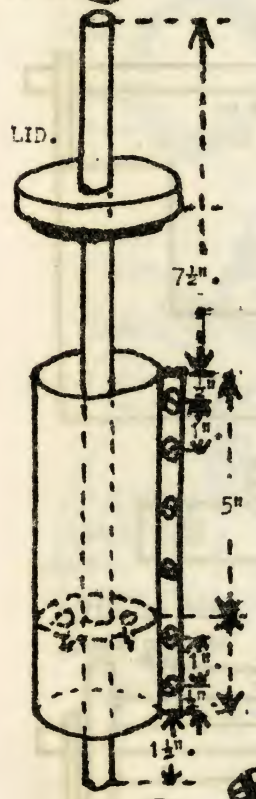
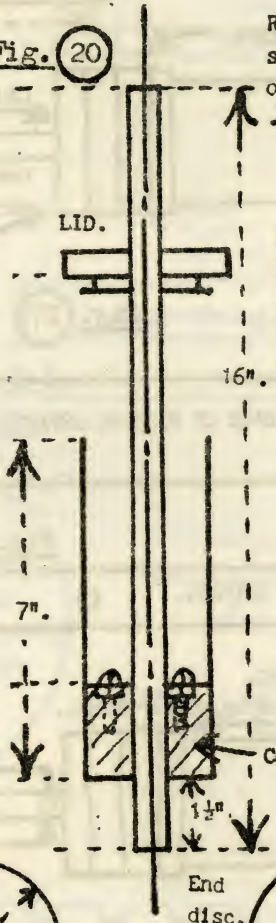


Fig. 20



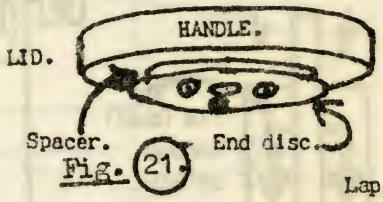


Fig. 21

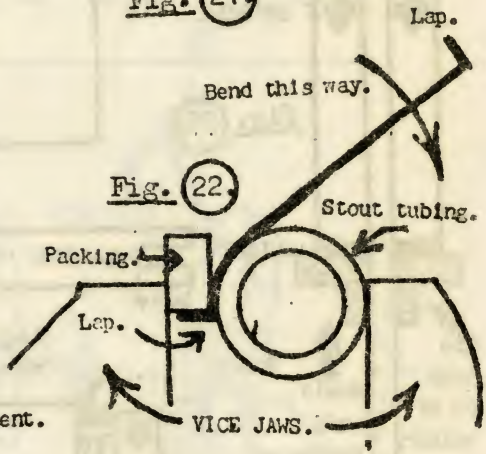
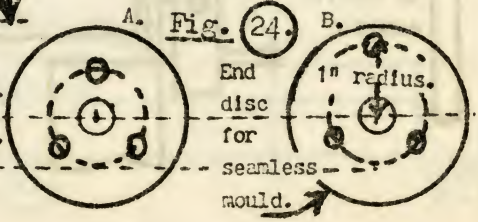


Fig. 22

Fig. 23.

Take average of about four diameter measurements.

Fig. 24.



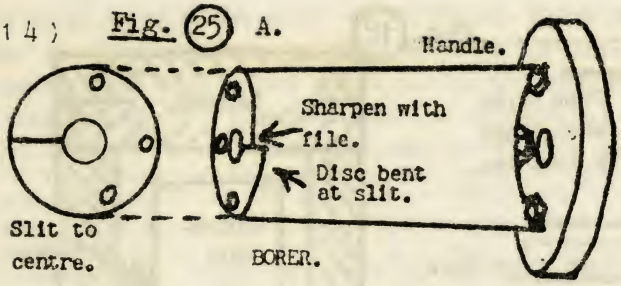


Fig. 25 A.

Fig. 25 B.

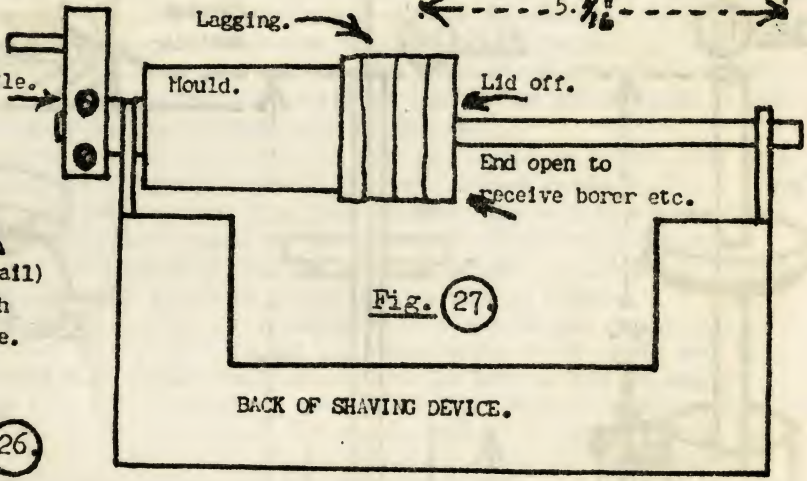


Fig. 27.

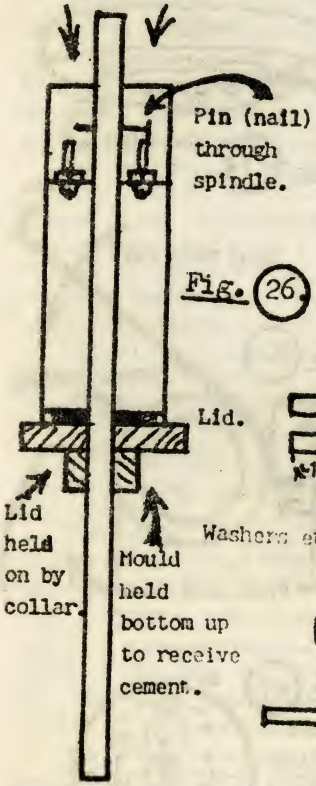


Fig. 26.

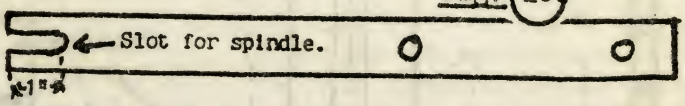


Fig. 28.

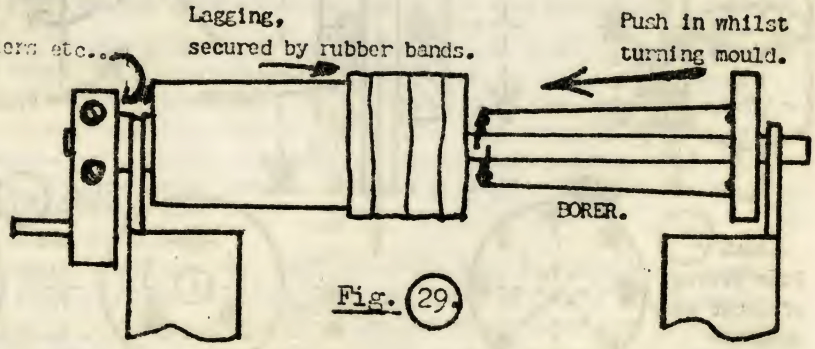
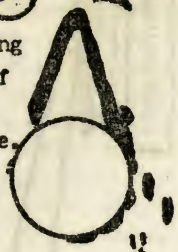


Fig. 29.

Fig. 30



Scraping wax off the spindle.

Fig. 31

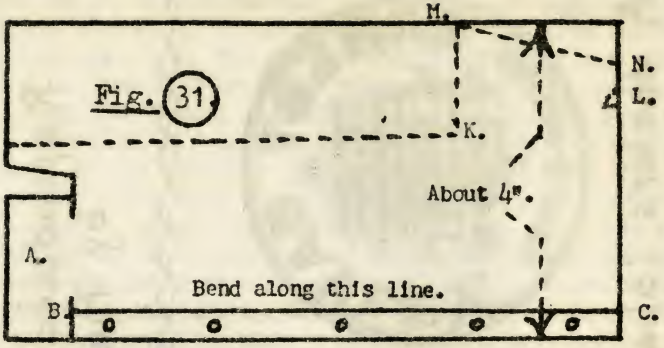
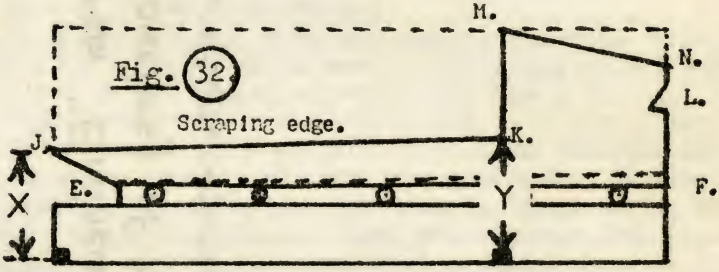


Fig. 34

Detail of spindle scraper collar.

Fig. 32



End view.

Fig. 33

Fig. 36

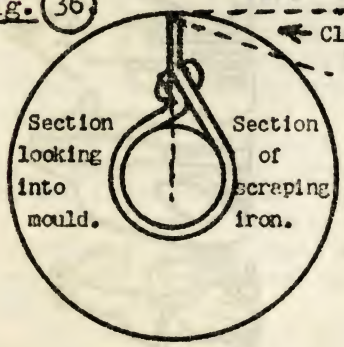
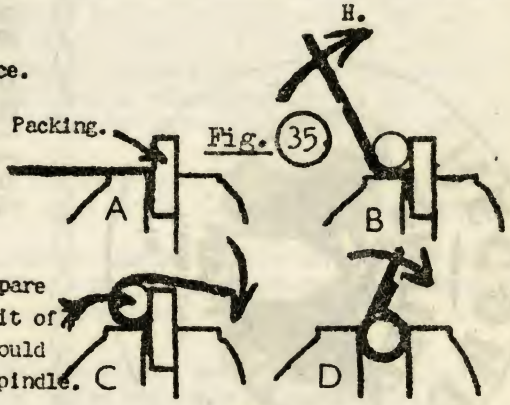


Fig. 35



Stages in bending the spindle sleeve in the vice.

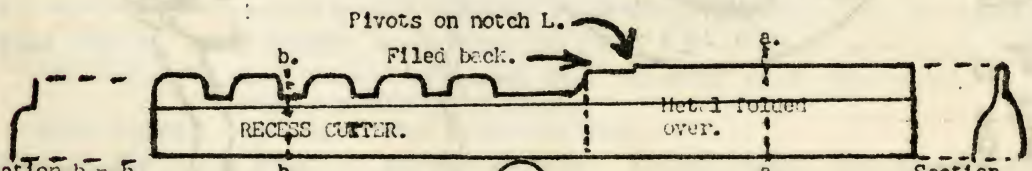


Fig. 37

Reproduced from "Eminews", June 1963,
by the courtesy of the Editor.

A dealer's label
(no relation to your Secretary!)

A label from a make of
cylinder difficult to find today

To make a scraping iron, cut out a rectangular piece of 22 guage (or heavier if you can bend it) iron or steel, as in Fig.31. It is to be bent to form a sleeve with a scraping blade as shown in Figs.32 and 33. The marking out of the dotted lines of Fig.31 is best left until after the sleeve has been bent round. The edge BC (Fig.31) is to be bent back at right angles to form a lap. Note that it is not to be bent along the whole length of this edge, the end half inch at A being for forming a spindle scraper - a kind of slotted collar on the leading end - bent somewhat as in Fig.34. This is to remove wax from the otherwise inaccesible part of the spindle as the scraper is pushed into the bore. Figs 35 A - D show stages of making the spindle sleeve with the help of some packing and some of the rod used in making the mould spindle. At stage D the holes for the screws and rivets are drilled right through using the holes in the lap as guides. When the sleeve is rivetted up, and the scraping collar bent into shape and sharpened with a file, the still flat portion of the metal is bent close to the lap along line EF, Fig.32, so that the scraper blade shall be in the same plane as the axis of the sleeve. For this to be possible without putting a twist on the blade, EF must pass through the apex of the cone of which the taper bore is part, being out of parallel with the axis to an extent of about 1 in 100. (The taper of a phonograph mandrel is close to 1 in 64 on the radius.)

At G and H, Fig.32, the spindle sleeve is filed away opposite the cutting blade (Fig.33) so that the measurements X and Y (Fig.32) can be made accurately from the bare mould spindle when the sleeve is on it. The theoretical radii of the bore at these two points are 27/ 32 inches and slightly under 15/16 inches respectively. It is best to measure with calipers from the back of the spindle taking the raius into account. Allowance must be made for wax shrinkage and stress effects. For a half inch spindle, start by making X a bit over $\frac{7}{8}$ inch, and Y $^{31}/_{32}$ inch, and cut out the shape indicated in Figs.31 and 32. Sharpen the scraping edge with a smooth file, allowing a small back clearance (Fig.36), and make a trial casting. The scraper is used like the borer. When the wax is cool after scraping, the shrinkage should make easy withdrawal from the mould possible. The bore will probably be found to be too large when the casting is tried on a phonograph mandrel. Measure how much too large (perhaps with feeler guages) and make the appropriate adjustments to X and Y, taking care not to confuse radius and diameter adjustments. It is best for the bore to be slightly too small after scraping to allow for some reaming. The warm scraping method is not very accurate.

To make the scraper more comfortable to use, saw the 'handle' end diagonally along line MN (Figs.31,32.), taking care to leave room for the notch L. A slotted wooden handle may be made to fit along MN.

A recess cutter, shown in Fig.37, may be used in conjunction with the scraping iron, and it pivots on notch L. (Figs. 31,32). It is not essential, but reaming is much easier after recesses have been cut, wax economy is effected, and it makes the insides of the blanks look more professional.

The wax casting, after reaming with the reamer described in Part 1, is ready for trueing and shaving - perhaps on the shaving device described in the same article.

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LONDON MEETINGS OF THE SOCIETY at the 'Horse and Groom' Curtain Road, London.E.C.2. 6.45 pm.

13th. August Mr.Harry Plunkett will speak about recordings of the Band of the Garde Republicaine of France.

10th.September. The recital will be by Mr.O.Waite.

MIDLAND MEETING OF THE SOCIETY at the 'Giffards Arms' Victoria Street, Wolverhampton 7.30 pm

27 th.July. Mr.Ronald Dunkley, Record Sales Manager of Messrs. Cliff & Halifax will speak on some aspects of the modern record industry.

A LOUIS XV EDISON DIAMOND DISC PHONOGRAPH

by J.J.Hopkinson

A few months ago I acquired a Louis XV Diamond Disc Phonograph with which I am delighted. It is illustrated upon the back cover of this magazine.

My wife insists that my phonographs (incuding an attractive Opera) be pushed into 'my' room upstairs, but this one has the honour of being in the drawing-room standing out elegantly and proudly, holding its own with antiques in the room and easily passing for "circa 1720". (Incidentally, my daughter Anne in the picture is "circa 1955").

The wood work is walnut with satin like finish, and the carving is cut into the cabinet and not "stuck on".

The metal handle on the bow front is brass and gilded and the winding handle, reproducer arm, arm-positioner, speed indicator and lid strut are the same type of brass.

It is a big machine which you cannot miss when coming into the room, being at a guess 1½ cwt. in weight; (it took three of us to carry it in). It is 4 feet high, 23 inches back to front and 21 inches wide.

Not only is it big to look at but its performance is big, being a laboratory model with a 17 inch horn, which deals with the lower notes and volume better than the 'standard horn' It is louder than any '1930' gramophone and comparing it with the Opera it has three or four timesmore volume and has a much wider frequency range. Incidentally this is the only phonograph which my wife has suggested I muffle down!

The jazz records are superb - some of my favourites being 'Sleepy Time Gal', 'I'm in Heaven when I see You Diane', 'Among My Souvenirs', and two violin soli 'Dear When I met You' and 'Window of my Dreams,' and a comic one I like, 'Don't Bring Lulu'. They just have something and I am surprised at the number of twenty-year-olds who like this kind of music. My only criticism of the reproduction is the background 'mush' on the records, but this is unnoticed once the music starts on a good recording.

Now a few interesting points on the mechanics. . . . .

It takes 100 turns to wind it up and it will play four or five sides, having two springseach 22 guage, 14 feet long and 1⅜ inches wide - being the same as my Opera. The lubrication system fascinates me. There are two oil holes on the top of the turntable-assembly which are very accessible. One of these leads into a reservoir under the top plate and from this fan out four straight tubes which strike out very meaningfullyinto the works. On following them to their destination each ends in another reservoir which again has two tubes from it and they in turn terminate at the various bearings. A similar system is to be found in the Opera. But the 'Piéce de résistance' is that after putting oil in the oil hole and waiting thirty seconds one can in fact see the same oil pouring over the bearings after having passed along the whole length of the system. I know that is what should happen, but after 52 years one could forgive its 'old inside' for not being quite spot on! An active testimony to Edison craftsmanship.

To conclude this account I should love to tell you how I acquired it . . . .
One sunny lunchtime I went to an antique shop the owner of which I know quite well, I popped the usual question, "Any phonographs?" She replied, "Yes, I believe my son(who is also

in the business) has a nice one, I will ring him up at home and you can go to see him."She did this promptly and I raced off to the house. He said,"Come in. I don't know what it is, but you might be interested." When I saw it I had a struggle to keep both eyes in their sockets but,being in the Medical Profession I managed to do this without too much e embarrassment. You see, I had expected to see a 'GEM' without a horn or reproducer ! Then casually he said,"Oh there is a box here with it." He showed me a vertical soundbox attachment for playing the ordinary 78 r.p.m. discs. "Oh! There are two more boxes here." Each had a Diamond Reproducer inside! At this point both eyes fell off their stalks and bounced on the carpet,and I lost my voice! When I recovered my voice and eyesight he said, "There is one snag:there are no records with it,that is why it is going cheap." On reflection I remembered an old friend who had some,so I spluttered,"Hold on for half an hour." I dashed off to see my friend. I was steaming with enthusiam when I told him of my find.After he had listened he turned and said,"Yes,I know all about it,it's mine;you see I have been promised the first chance of it." I now became dismal and felt down-trodden when I realised what a terrible mistake and confusion had occurred,and so I went back to my dealer friend and we decided rightly,that my old friend must have first choice. I could not wait,so the Dealer kindly said that my friend could see the phonograph right away. This was done,and quite understandably he bought! Life meant very little to me and I did not sleep for three nights. Finally I gained courage to go to see how my friend was faring with his gorgeous phonograph. When I arrived,he was sitting looking at it with admiration ,and I knew I should never again see another like it - a chance of a lifetime so nearly missed. After we had both admired this beauty for a few minutes I said,"I think you need it more than I." You see, he is a keen musician and a true lover of phonographs and a great Edison enthusiast. He happend to be a sprightly eighty years old.

He looked at me for a few seconds and although he hadn't seen me for the last three days he said,"I know you have been unhappy these last few days over this," he smiled a little,and after a pause,said,"go on,it's yours,and I don't want any profit.Incidentally, do you want 130 records to go with it?"

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Basic Principles of Sound Recording
by Denis Harbour

In my previous article I attempted to explain a few elementary facts about the way sound behaves.The velocity of sound was discussed and,you will remember,a simple waveform.It is not my intention to write an article similar to that seen in a text book,but rather the sort to appeal to someone who has not yet considered the technical side of recording,and who would very much like to learn,so I must be careful not to frighten him away.
On with the show . . . .

Sound then,consists of changes of pressure in the air,these changes being set up by bodies being set into vibration.The particles of air forming the first pulse of compression does not travel to our ears. It pushes against the next one,and that in turn to the next,and so on,rather like a number of marbles in a tube each allowed to move only a small distance. Each marble will be driven to its neighbour and the last marble will travel almost as great a distance as the first - this one conveying the information.Now air is elastic in nature,

and if we propagate a motion each particle in being compressed absorbs a little ehergy,so we can say that a lot of energy is lost between a sound source and its destination.This is not the only reason as sound travels in all directions,covering an ever increasing area, but more of this later.If we look at figure 4 we will see a few small springs attached together.Each spring will compress a little,and so absorb energy,until there is none left. A pressure change of one thousandth part of an inch reaching our ears represents a sound of such intensity as to cause pain. If we look at the diagram(in part I of my article) of the waveform,we see that the distance from crest to crest is equal to one cycle,and the number of cycles per second is the frequency. The loudness,on the other hand,is represented by the distance from peak to peak or the distance between two imaginary lines drawn along the top and bottom of the whole diagram,The louder our sound becomes,the further apart these two parallel lines will be,and vice-versa. In practise this is measured in Bels,but this is rather a large unit so that the Decibel,or one tenth of a Bel is more common. The smallest change that can be detected in good conditions is one Decibel.The Decibel is written thus: dB. The smallest sound that can be detected is called the threshold of hearing,and the loudest sound is called the threshold of pain - where the noise is loud enough to hurt the ears. Now someone is sure to have asked by now some questions on frequency,such as,"What does so many cycles sound like?" I have drawn a chart (Fig.5) to try to show this - but remember this only shows the Fundamental frequency. We will study this in the following way : A string or wire is stretched between two points,(Fig.6). Over the edge of the table via a small pulley a weight is attached to the string.If the string is plucked it will vibrate,giving a musical note. The pitch of the note can be controlled in three ways: A) By altering its length.

B) By increasing the tension.

C) By increasing the thickness of the string.

If we insert a third bridge under the centre of the string and place the finger on top both halves of the string will vibrate at just twice the frequency as before - so,by halving the length of the string we double the frquency.Now a string vibrating alone as in the first condition does not produce a pure tone.The vibration is a complex pattern and produces frequencies not only of the fundamental,but also twice as high,which is called a second harmonic,and also patterns of a third of its length(third harmonic),a quarter of its legth (fourth harmonic),a fifth of its length(fifth harmonic) and so on. The even harmonics,that is the second,fourth,eighth,sixteenth,and so on are an octave apart.The fact that when a body or string is set into vibration it vibrates in a complex manner,is one of the things that gives a musical instrument its quality.The bass string of a piano is thicker and heavier than the treble strings,and are often wound with wire to make them so.Also they do not have the same tension and are longer.Make a simple instrument like that described and try the following experiments:

1).Shift the bridges apart so that the effective length of the string is altered.

2). For any length of string decided upon,alter the weight to twice the amount.

3).Keeping the above constant,replace the string with one of twice the thickness.

4).Try plucking the string first with the fingers and then with a 'plectrum', or metallic object and note the difference.

The plectrum forces the string into a triangle and in this way gives sound of a transient nature.Transient sounds are sharp and sudden,and with the string there will be more of a metallic quality than with the fingers,when the string is rounded.To return to Fig.5,you will see that an increase of one octave means an increase to twice the

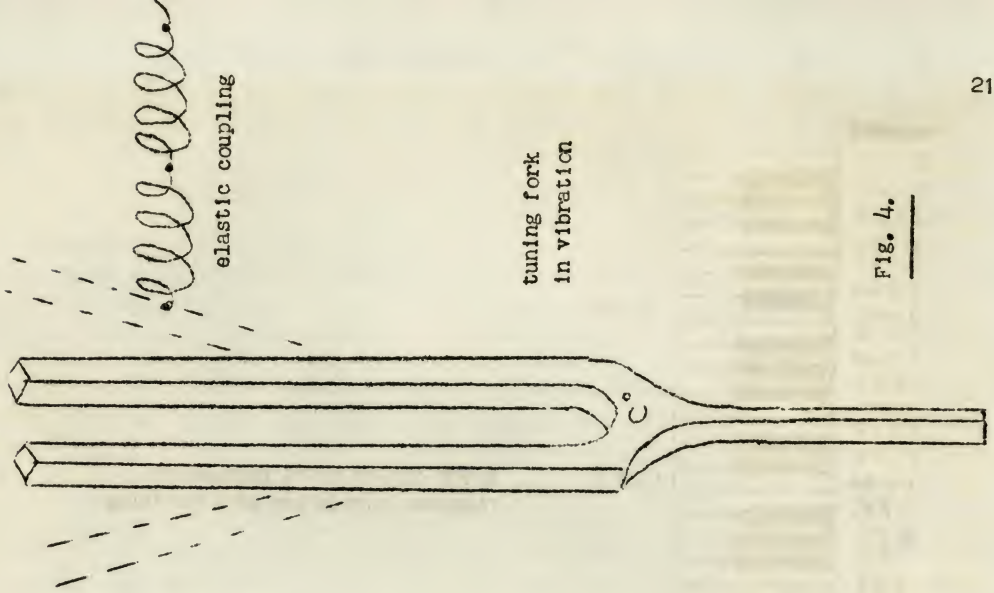

elastic coupling
tuning fork
in vibration

Fig. 4.

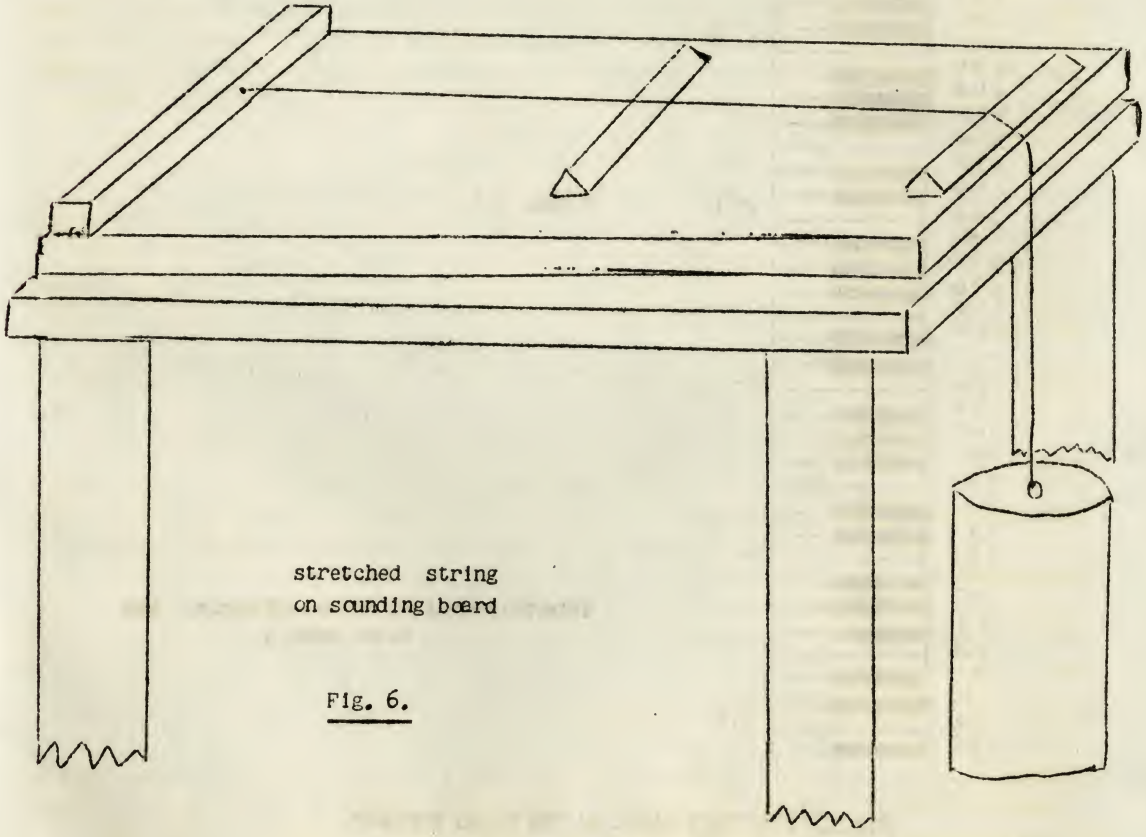
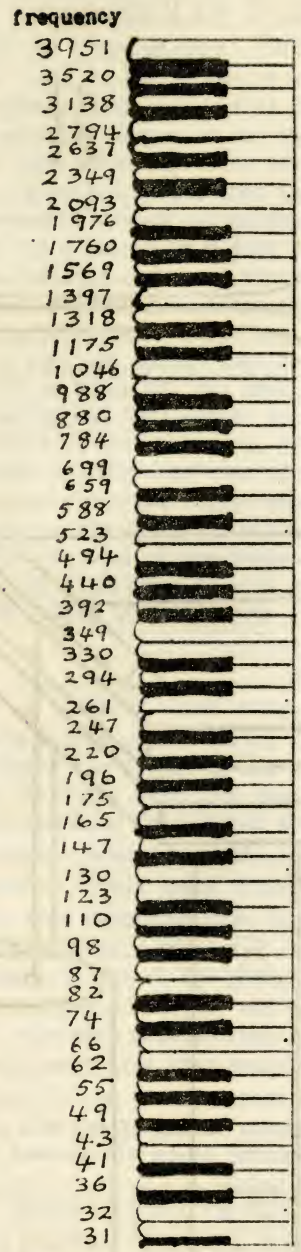

stretched string
on sounding board

Fig. 6.



1,000 cycles about here, where response curves are plotted from.

Middle 'C'

Interference from mains (50 c.p.s. hum about here.)

FIG.5. FREQUENCY RANGE OF THE PIANO KEYBOARD,

BASED ON MIDDLE C : 264 C.P.S.

frequency.Taking the piano key of 'C' we start at C2 which is 523 cycles(based on middle C as 261 cycles concert pitch) fundamental. Right up to the top of the scale,each succesive octave is twice the frequency of the last one,and we end at C4 2093 cycles.

In reading this article,it may be as well to keep referring back to earlier pages to avoid confusion,but remember that sound,whether it be a roll of thunder,the crescendo of a 100 piece orchestra,or the mere dropping of a pin can only be produced by setting things in vibration. To the audio engineer,whatever the sound,it can only represent either a simple or complex waveform over a band of frequencies. A recording machine cannot tell whether the sound fed into it has any meaning or musical quality.That comes from our own interpretation which is mainly psychological when we hear the sound reproduced.It is equally at home with speech in any language.

In order not to be repetitive,let us forget sound waves for a time and study a little physics.It is necessary to know something of the mechanics of sound if we wish to carry out some experiments,so it will be as well to take into account why,so far as we know,things behave as they do.Thus,my next article will be a little more fundamental and I hope to describe one or two "table top" investigations using the inevitable drawing pins, pieces of string,rubber bands,etc., . . . But,I hope to avoid the extensive use of chewing gum!!

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? ? ? Meetings around Hereford ? ? ?

Members living in the region of Hereford are invited to contact Mr.D.G.Watson , [redacted] Tupsley,Hereford,who hopes to arrange meetings commencing in the autumn.

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Midland Mandrel No.3. by Phil Bennett

The third meeting of the Midland Group of the Society took place at the Giffards Arms Wolverhampton on Saturday 25th.May.

The speaker was a collector well known in Society circles,Mr.Bob Duke of Loughborough, who specialises in the Edison recordings of the well known jazz pioneer trombonist Harry Raderman. Bob told us how Raderman had been concerned in jazz from the earliest days when he was playing trombone in the first New York jazz band to follow in the wake of the Original Dixieland Jazz Band - none other than Earl Fuller's Famous Jazz Band who commenced recording in June 1917,first for Victor and then for Edison in 1918.In 1919 the Earl Fuller band became the emryo of the very successful Ted Lewis Band with whom Raderman remained for many years. During this time he was also leading his own recording band and in this role he was one of the leading lights on Edison discs and cylinders during the Twenties,as well as being the featured laughing trombonist on the immensely popular recording of Yellow Dog Blues by Joseph C.Smith's Orchestra on Victor(and H.M.V. in Britain.)

Apart from the recordings of Harry Raderman,Bob also played one of the less well known cylinders of Vincent Lopez' 1920 jazz band,Lopez & Hamilton's Harmony Kings.

We thank Bob for his very interesting recital.

Our next meeting will again be at the Giffards Arms,Wolverhampton,on 27th.July,when the speaker will be Mr.Ronald Dunkley,Record Sales Manager for Messrs Cliff & Halifax. He will speak on some aspects of the modern record industry.

Some Reminiscemces by George A.Barney

I was born and brought up in the shadow of the H.M.V.factory and recall most of the pre-1914 artistes.Our school was across the road from the recording studios.We knew when a famous singer was coming to record because the Headmistress was asked on such occasions to stop all singing in the school.Our singing had once ruined a recording! There was one occasion when a famous singer had made a recording.On the playback was heard a "cock-a-doodle-doo",so the firm immediately purchased all the chickens from the neighbouring houses. It has now bought much of the property round about and our School has been demolished to provide a car park.

After school we would rush round to the Head Office hoping to catch a glimpse of some of the stars departing. Harry Lauder was our favourite.He would stand up in his open top car and sing "I Love a Lassie" for us. Another much loved singer in those days was Peter Dawson.We thought he was a real "toff". Madam Tetrazzini once gave a concert for the H.M.V. employees. Later on there was "Gracie". . .What a wonderful woman!

I was selling papers outside the factory on the day that World War I was declared, the only day that I sold out! Very soon,all the employees were sacked,and then all taken on again under Government contract. When I left school and started to work there we were making products of war and I was making cartridge clips and 18-pounder shell cases.

Harry Lauder made some recordings of 'war' songs.My father,who worked in the "Black Hole fof Calcutta" where the old 78 r.p.m. records were pressed,said that he and his workmates had to go to the studio and march up and down the room while Harry was recording.

My neighbour was the chief electrician at the time when Mme.Tetrazzini gave a concert for the employees.He was told to keep the powerhouse going until midnight as the firm was giving a dinner after the concert. At the appointed time he went to the Head Office to ascertain if the party had ended. He found the man who supervised the office cleaners in the party room surrounded by bottles of all sorts of drinks,and boxes of cigars and cigarettes. This man told my neighbour to 'help himself' as it had all to be cleared by morning. . . . . When the morning came this man was found in such a drunken condition that he was dismissed instantly!!

In the old days employees could borrow a Gramophone and six records for the week-end. If one already possessed a Gramophone he could borrow twelve records.

The 'Gramophone Company' was a nice 'family' place to work at.I have retired after 31 years service and I have enjoyed every minute of it.

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Editor's tailpiece

We apologise for the terrible lateness of this issue.We suffered some incredible 'gremlins' in various guises who conspired against us.Some adverts are unavoidably omitted,but will be included in the August issue,which,unless I am tempting fate by saying it,should be in the post by the middle of the month.

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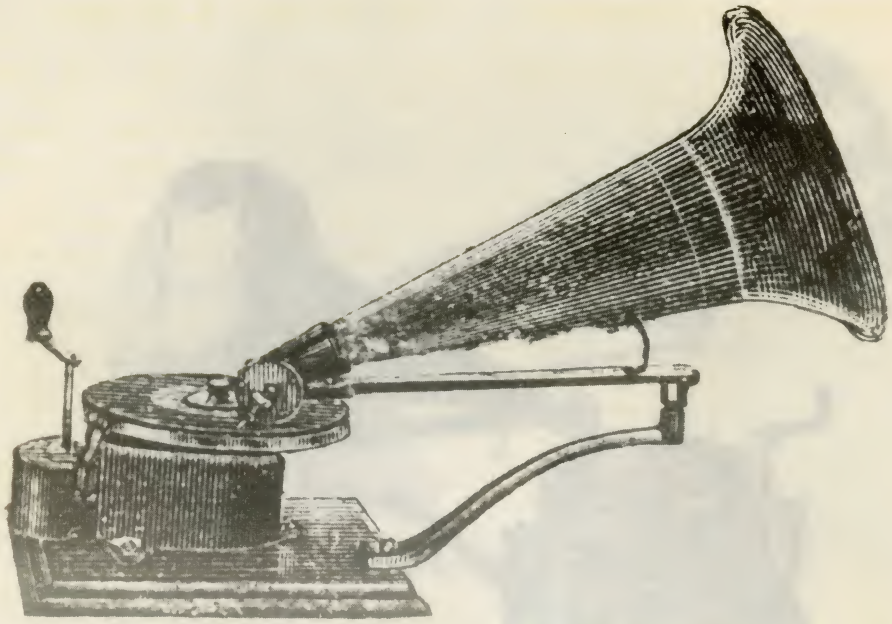
The Hillandale News is the official magazine of the City of London Phonograph and Gramophone Society. Secretarial address: 19.Glendale Road,Southbourne,Bournemouth,Hampshire England.



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"Penny-in-Slot"

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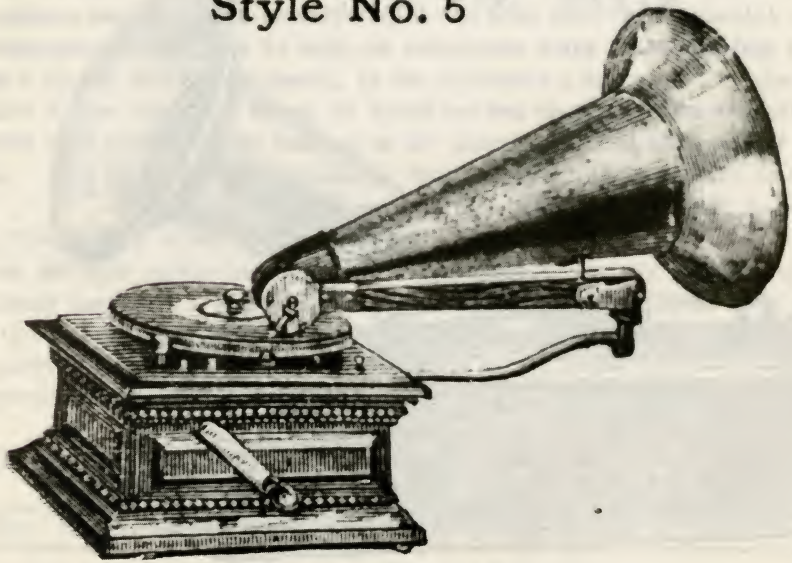

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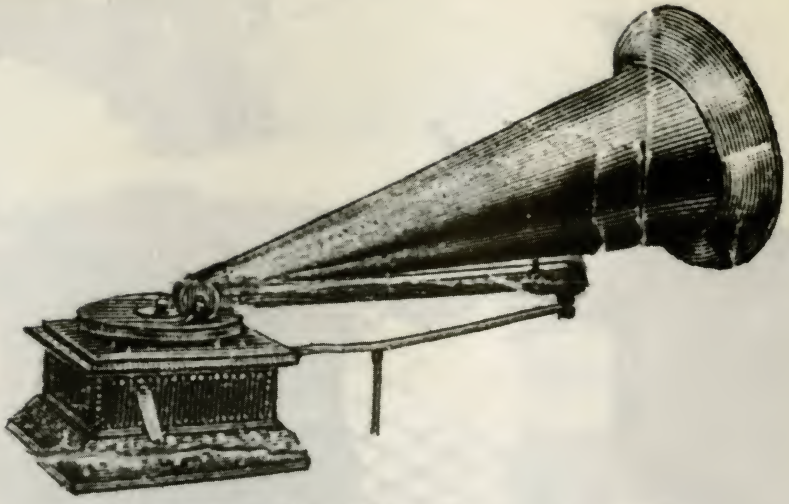

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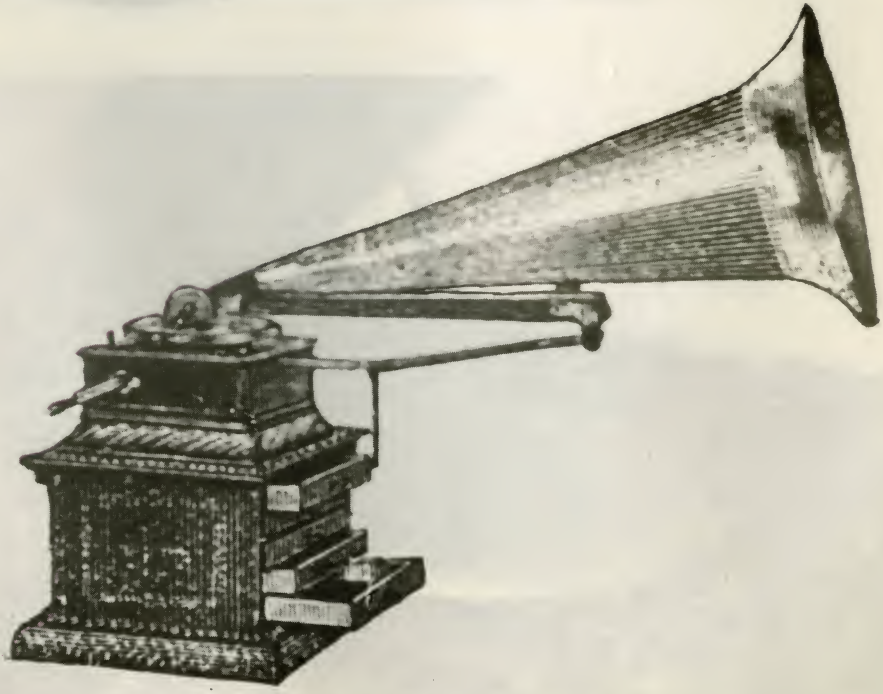

Style De Luxe